Alexander Bertoloni Meli

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Employment

University of Michigan — **Ann Arbor, MI**
Research Assistant Professor — **2020-present**

Education

UC Berkeley — **Berkeley, CA**
PhD in Mathematics — **May 2020**

University of Chicago — **Chicago, IL**
B.A. in Mathematics, GPA 3.96 — **June 2014**

Research Interests

- The Langlands program, characterization of the Langlands correspondence and its properties, endoscopy
- The cohomology of local and global Shimura varieties, Igusa varieties
- Representation theory of p-adic groups

Papers and Preprints

1. Appendix: *Relationship to the classical averaging formula* (appendix to *Geometric Eisenstein series, intertwining operators, and Shin's averaging formula* by Linus Hamann. (preprint) https://arxiv.org/abs/2209.08175
2. *Compatibility of the Fargues–Scholze correspondence for unitary groups* (with Linus Hamann and Kieu Hieu Nguyen). (preprint) https://arxiv.org/abs/2207.13193
3. *The stable trace formula for Igusa varieties, II* (with Sug Woo Shin). (preprint) https://arxiv.org/abs/2205.05462
4. *The Jacobson–Morozov theorem for Langlands parameters in the relative setting* (with Naoki Imai and Alex Youcis). (preprint) https://arxiv.org/abs/2203.01768
5. *An averaging formula for the cohomology of PEL-type Rapoport–Zink spaces* (preprint) https://arxiv.org/abs/2103.11538
6. *Global B(G) with adelic coefficients and transfer factors at non-regular elements* (preprint) https://arxiv.org/abs/2103.11570
7. *An Approach to the Characterization of the Local Langlands Correspondence* (with Alex Youcis). (preprint) https://arxiv.org/abs/2003.11484
8. *The Scholze-Shin Conjecture for Unramified Unitary Groups I: The Case of No Endoscopy* (with Alex Youcis). (preprint available on website)
9. *The Kottwitz conjecture for unitary PEL-type Rapoport–Zink spaces* (with Kieu Hieu Nguyen). to appear in *Journal für die Reine und Angewandte Mathematik (Crelle's Journal)*, 2022 https://arxiv.org/abs/2104.05912
10. *The Cohomology of Unramified Rapoport-Zink Spaces of EL-Type and Harris's Conjecture.* *The Journal of the Institute of Mathematics of Jussieu*, pp.1-56, 2021 https://arxiv.org/pdf/1802.01629.pdf

Invited Talks Given in Seminars, Workshops, and Conferences

- Johns Hopkins Number Theory Seminar. December 2022
- Lie Group and Representation Theory Seminar. University of Maryland, December 2022
- Lie Group Seminar. MIT, November 2022
- CLAP2 Conference. Bonn, August 2022
- Midwest Representation Theory Conference. March 2022
- Indiana University Algebra Seminar. October 2021 (Talk given remotely via Zoom)
- University of Munster. June 2021 (Talk given remotely via Zoom)
- Kyoto University Number Theory Seminar. June 2020 (Talk given remotely via Zoom)
- UC Berkeley Number Theory Seminar. May 2020 (Talk given remotely via Zoom)
- Purdue University Number Theory Seminar. March 2020 (Talk cancelled due to Covid19)
- Stanford Number Theory Seminar. March 2020 (Talk cancelled due to Covid19)
- Group, Lie, and Number Theory Seminar. University of Michigan, January 2020
- Junior Number Theory Days. Johns Hopkins, December 2019
- Arithmetic of Shimura Varieties Workshop. MFO Oberwolfach, January 2019
- Talk in lecture series by Sug Woo Shin on the Langlands Rapoport Conjecture. University of Tokyo, May 2018
- West Coast Algebraic Topology Summer School. (with Tony Feng), August 2016

Service and Outreach

- University of Michigan
  - Michigan REU (Summer 2022)
  - Math Corp (Summer 2020, Winter 2022)
  - Served on Peter Dillery's thesis defence committee (May 2022)
  - Co-organized number theory RTG seminar (Fall 2021)
  - Served on David Schwein's thesis defense committee (July 2021)
- UC Berkeley
  - Co-organized seminar on Kaletha-Weinstein paper: "On the Kottwitz Conjecture for moduli spaces of local shtukas" (Fall 2019)
  - Co-organized working group on Weinstein lectures
    Number Theory and Arithmetic Geometry RTG Workshop (May 2019)
  - Co-organized working group on Guralnick and Tiep lectures
    Number Theory and Arithmetic Geometry RTG Workshop (May 2018)
  - Co-organized graduate student seminar on Bruhat-Tits Theory. (Spring 2018)
  - Co-organized UC Berkeley DRP, Spring 2015-Spring 2017
  - Ran 4-lecture mini-course on p-divisible groups, isocrystals, and Rapoport-Zink spaces. (Spring 2015)
  - Co-organized graduate student seminar on Shimura Varieties. (Fall 2015)

Mentoring

- Nir Elber, *Representations of Galois gerbes*, Summer REU at UofM, Summer 2022
- Maxwell Ye, *Representations of Galois gerbes*, Summer REU at UofM, Summer 2022
- Miho Kasai, *Introduction to p-adic numbers*, independent study at UofM, Fall 2021
- Yingzi Yang, *Group cohomology*, independent study at UofM, Spring 2021
- Walter Spurlock, *Introduction to matrix groups*, UC Berkeley Directed Reading Program, Fall 2018
- James Leng, *Elliptic curves*, UC Berkeley DRP Spring 2018,
- Yuxi Han, *Trees* and *Galois groups and fundamental groups*, UC Berkeley DRP, Fall 2016, Spring 2017
- Binglin Song, *Primes of the form* $x^2 + ny^2$, UC Berkeley DRP, Fall 2015
- Victoria Park, *Differentiable manifolds*, UC Berkeley DRP, Spring 2015

Teaching

University of Michigan **Ann Arbor, MI**
Course Instructor Fall 2020- present

- Math 678, Modular Forms (Fall 2022)
- Math 419, Linear Algebra (Winter 2022)
- Math 217, IBL Linear Algebra (Fall 2021)
- Math 116, Calculus II (Winter 2021)
- Math 115, Calculus I (Fall 2020)

University of California, Berkeley **Berkeley, CA**
Graduate Student Instructor (GSI) Fall 2014- Spring 2020

- Math 110, Linear Algebra (Spring 2020)
- Math 110, Linear Algebra (Fall 2018)
- Math 55, Discrete Mathematics (Fall 2017)
- Math 54, Linear Algebra and Differential Equations (Fall 2016)
- Math 104, Real Analysis (Spring 2016)
- Math 54, Linear Algebra and Differential Equations (Fall 2015)
- Math 1B, Calculus (Spring 2015)
- Math 1A, Calculus (Fall 2014)